

5625/USSN 10/031,365
Group Art Unit 1741

-- 32. An electrode formation according to Claim 11 connectable to means to indicate cessation of particle flow. --

R E M A R K S

The captioned application is the national phase of PCT Appln. No. PCT/GB00/02801.

The claims are being amended as to form only to better conform the claims to U.S. claim practice, in particular with respect to claim dependency.

An Abstract has been added. The Abstract reads essentially as published in the corresponding PCT application under number WO 01/05511 A1.

Favorable consideration of the claims is requested.

Respectfully submitted,

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Attachments - Clean Version of Abstract
- Marked-Up Version of Claims

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CLEAN VERSION OF ABSTRACT

-- ABSTRACT

An electrode formation for use in an AC electrokinetic DEP or TWD or electrorotation cell includes a substrate on which there is a set of conventional electrodes and a further electrode array to measure an AC electrokinetic-related property. The property may be permittivity or electrical conductivity or temperature or pH or fluid flow rate, or the presence or passage of a particle or particles. --

MARKED-UP VERSION OF CLAIMS

1. (Amended) An electrode formation for use in an AC electrokinetic effect cell comprising a substrate and carried on the substrate

a set of a plurality of electrodes arranged for [the] application of an AC electrokinetic force; and

a measurement electrode array arranged for [the] measurement of an AC electrokinetic-related parameter.

2. (Amended) An electrode formation according to Claim 1 in which the set of a plurality of electrodes is connectable to measurement means to measure [the] permittivity or [the] electrical conductivity or [the] temperature or [the] pH or [the] flow rate of a liquid or [the] chemical content in [the] a vicinity of the array or [the] integrity of the electrodes.

3. (Amended) An electrode formation according to Claim 1 in which the measurement electrode array is connectable to measurement means to measure [the] permittivity or [the] electrical conductivity or [the] temperature or [the] pH or [the] flow rate or [the] chemical content of a liquid in [the] a vicinity of the array.

4. (Amended) An electrode formation according to Claim 1 in which the measurement electrode array is connectable to measurement means to detect [the] presence or [the] passage of particles adjacent the array.

9. (Amended) An electrode formation according to Claim 1, 2 or 3 in which the measurement electrode array is an elongated electrode spaced across the direction of fluid flow, connectable to means to supply a heating current to [the] a wire and means to sense [the] temperature of the wire and the fluid flow.

10. (Amended) An electrode formation according to Claim 1, 2 or 4 in which the measurement electrode array is a first pair of electrodes spaced across the direction of particle movement, the electrodes being connectable to means to measure impedance.

11. (Amended) An electrode formation according to Claim 10 further comprising a second pair of electrodes spaced across the direction of particle movement and spaced in the direction of flow from the first pair, both pairs being connectable to means to measure [the] speed of [the] a particle between the first pair and the second pair [pairs] of electrodes.

12. (Amended) An electrode formation according to Claim 10 [or 11] connectable to means to indicate cessation of particle flow.

13. (Amended) An electrode formation according to Claim 10 further comprising two or more [further] arrays of TWD electrodes diverging from an output end of said set of electrodes for application of a TWD force, and means to

[energise] energize one of said [further] two or more arrays in accordance with a sensed property of a particle.

14. (Amended) An electrode formation according to [any preceding] Claim 1 in which the set of a plurality of electrodes and the measurement electrode array are arranged on the substrate so as to overlap, there being an insulating film between the set and the array.

15. (Amended) An AC electrokinetic effect system comprising an electrode formation according to [any preceding] Claim 1, 2, 3 or 4, a second substrate spaced from the first, signal supply means to apply an electrical signal to the set of a plurality of electrodes to generate an AC electrokinetic force, and measuring means to measure an AC electrokinetic-related parameter connected to the measurement electrode array.

16. (Amended) A system according to Claim 15 further comprising adjustment means to adjust said AC electrokinetic-related parameter in accordance with [the] a value sensed by the measuring means.

19. (Amended) An AC electrokinetic effect electrode test system comprising an array of electrodes carried on a substrate arrangement for [the] application of a DEP or TWD or electrorotation force;

and connected to the electrodes, signal supply means to apply at least one electrical signal to generate an AC electrokinetic force; and measuring means to measure an AC

electrokinetic-related parameter or [the] integrity of the electrodes.

20. (Amended) A test system according to Claim 19 in which the measuring means is arranged to measure [the] impedance of at least one electrode.

22. (Amended) A test system according to Claim 19 in which the measuring means is arranged to measure [the] capacitance or impedance of a part of the length of two adjacent [electrode] electrodes.

23. (Amended) A method of measuring an AC electrokinetic-related parameter of a suspension of particles in a liquid [comprises] comprising applying an AC electrokinetic force to said suspension by means of an array of electrodes, and measuring said parameter by connection of said array to electrical measuring means.

24. (Amended) A method of maintaining conditions for viability of a type of particle during application of an AC electrokinetic process [comprises] comprising suspending the particle in a fluid; applying to the suspension an AC electrokinetic force; sensing an AC electrokinetic-related parameter upon which viability is dependent; and adjusting said parameter to maintain viability.

27. (Amended) A method of assisting an AC electrokinetic process in [the separation of] separating two types of particles in a suspension [comprises] comprising applying to the suspension an AC electrokinetic force;

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sensing an AC electrokinetic-related parameter of the suspension; controlling said parameter so that one type of particle remains viable, while [the] an other type of [particles] particle is subject to a deleterious effect; and applying an AC electrokinetic force whereby the particle types are separated.